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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,589	LONG ET AL.	
	Examiner	Art Unit	
	Kenan Cehic	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____is/ are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/08/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claim1-9, 13, 19-27 is withdrawn in view of the newly discovered reference(s) to ITU-T Recommendation G.992.3 and Hasegawa et al. (US 2001/0024454). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claim 1, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3. in view of Hasegawa et al. (US 2001/0024454 A1).

For claim 1, D1 discloses a channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”) of a DSL service initialization (see page 98-100, 8.13 “Initialization Procedure....ADSL transceiver initialization “), the method comprising:

transmitting a C-COMB signal (see page 111, 8.13.3.1.2 “transmit....C-COMB symbols” and page 145 , 8.15.2 “Channel discovery phase....loop diagnostic mode...figure 8-35” 158 “C-COMB1....C-COMB2” and page 137 “C-COMB1....C-COMB2”) to a customer premises DSL transceiver (see page 98 , 8.13.1.1 “ATU-R and ATU-C.....which parameters are exchanged” andpage 111, 8.13.3.1.2 “ATU-C shall transmit....ATU-R”) during the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”); and

a quiet period (see page 137 “C-Quiet1....C-Quiet2.... C-Quiet3-5” and page 110 ,8.13.3.1.1 “C-Quiet1”) of the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”).

For claim 19, D1 discloses a central office DSL transceiver (see page 98, 8.13 "ATU-C" and page 6 "ATU-C...central office") during a channel discovery phase (see page 98-100 8.13 and fig 8-23 "Channel Discovery" and page 110, 8.13.3 "Channel discovery phase") of a DSL service initialization (see page 98-100, 8.13 "Initialization Procedure....ADSL transceiver initialization "), the transceiver configured to perform the operations: transmitting a C-COMB signal to a customer premises DSL transceiver during the channel discovery phase (see page 98-100 8.13 and fig 8-23 "Channel Discovery" and page 110, 8.13.3 "Channel discovery phase"), the C-COMB signal (see page 111, 8.13.3.1.2 "transmit....C-COMB symbols" and page 145 , 8.15.2 "Channel discovery phase....loop diagnostic mode...figure 8-35" 158 "C-COMB1....C-COMB2" and page 137 "C-COMB1....C-COMB2") and during a quiet period (see page 137 "C-Quiet1....C-Quiet2.... C-Quiet3-5" and page 110 ,8.13.3.1.1 "C-Quiet1") of the channel discovery phase (see page 98-100 8.13 and fig 8-23 "Channel Discovery" and page 110, 8.13.3 "Channel discovery phase");

D1 is silent about :

As regarding claim 1, A method for synchronizing a TCM Timing Reference (TTRI clock) operating in a Time Compression Multiplexing (TCM-ISDN noise environment), a signal including a TTR indication portion allowing the customer premises DSL transceiver to synchronize the TTR clock, and transmitting a TTR indication signal to the customer premises DSL transceiver to maintain synchronization of the transceiver's TTR clock.

As regarding claim 19, for maintaining synchronization of a customer premises TCM Timing Reference (TTR clock), operating in a Time Compression Multiplexing (TCM-ISDN) noise environment, including a TTR indication portion allowing the customer premises DSL transceiver to synchronize a TTR clock; transmitting a TTR indication signal to the customer premises DSL transceiver to maintain synchronization of the transceiver's TTR clock.

Hasewaga from the same or similar field of endeavor discloses:

As regarding claim 1, Hasewaga discloses a method for synchronizing a TCM Timing Reference (TTRI clock) operating in a Time Compression Multiplexing (TCM-ISDN) noise environment) (see section 0054 "ISDN....TMC......ADSL line ..and the TCM line ...in parallel in the same cable....TCM crosstalk"), a signal (see fig 13—b "ADSL hyperframe....ADSL superframe") including a TTR indication portion (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") allowing the customer premises DSL transceiver (see fig. 1 "Subscriber ADSL Machine" and section 0068"transmits and receives data") to synchronize the TTR clock (section 0120-0142 "synchronization" andsection 0191 "signal data...inverse synchronization symbol...held as data for TTR

resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR"), and transmitting a TTR indication signal (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") to the customer premises DSL transceiver (see fig. 1 "Subscriber ADSL Machine" and section 0068"transmits and receives data") to maintain synchronization (section 0120-0142 "synchronization" and section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") of the transceiver's (see fig. 1 "Subscriber ADSL Machine" and section 0068"transmits and receives data") TTR clock (section 0120-0142 "synchronization" and section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR").

As regarding claim 19, Hasewaga discloses for maintaining synchronization (section 0120-0142 "synchronization" andsection 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") of a customer premises (see fig. 1 "Subscriber ADSL Machine" and section 0068"transmits and receives data") TCM Timing Reference (TTR clock) (section 0120-0142 "synchronization" andsection 0191 "signal

data…inverse synchronization symbol…held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR"), operating in a Time Compression Multiplexing (TCM-ISDN) noise environment (see section 0054 "ISDN….TMC……ADSL line ..and the TCM line ...in parallel in the same cable....TCM crosstalk"), including a TTR indication portion (see fig 13a-b "Synchronization symbol…Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR…information specifying the TTR…receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data…inverse synchronization symbol…held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") allowing the customer premises DSL transceiver (see fig. 1 "Subscriber ADSL Machine" and section 0068"transmits and receives data") to synchronize a TTR clock (section 0120-0142 "synchronization" and section 0191 "signal data…inverse synchronization symbol…held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR"); transmitting a TTR indication signal (see fig 13a-b "Synchronization symbol…Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR…information specifying the TTR…receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data…inverse synchronization symbol…held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") to the customer premises DSL transceiver (see fig. 1 "Subscriber ADSL Machine" and section

0068"transmits and receives data") to maintain synchronization of the transceiver's TTR clock(section 0120-0142 "synchronization" and section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of D1 by using the features, as taught by Hasegawa, in order to provide resynchronize with the office TTR clock, without having to redo initialization; and to be initialized with office TTR clock in order to receive data correctly which enhances the users experience (see section 0074-0078). Additionally, it would have been obvious to use a know technique to improve a similar device/method.

3. Claims 2-4, 7-9, 20-22, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3 and Hasegawa et al. (US 2001/0024454 A1) as applied to claim 1 above, further in view of Okamura (US 6,658,024 B1).

For claims 2-4, 7-9, 20-22, 25-27, D1 and Hasegawa disclose all the claimed invention in paragraph 2.

For claim 2 and 20, Hasegawa teaches a first set of symbols (see Figure 13c, note "S") for indicating the hyperframe boundary (see Figure 13b, note "S" is at the beginning and end of the frame thus marking a boundary; also see section 0146 lines 9-10); and a second set of symbols (see Figure 13c, note the rest of the symbols).

For claim 3 and 21, Hasegawa teaches wherein the first set of symbols includes the first continuous group of symbols of the hyperframe dominated by far-end crosstalk interference (see Figure 12e and Figure 13 b; both diagrams have the same TTR clock (Figures 12a and 13b), where it is shown that FEXT (far end crosstalk) happens at the ends, thus making the "S" fall into the FEXT region; also see section 0070, where the synchronization symbol is classified as a FEXT symbol)

For claim 4 and 22, Hasegawa teaches wherein the TTR indication signal (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") is comprises-transmitted during each of the first set of symbols (see fig 13—b "S"); and claim 4, ITU-T Recommendation G.992.3 discloses a channel discovery phase (see page 98-100 8.13 and fig 8-23 "Channel Discovery" and page 110, 8.13.3 "Channel discovery phase") of a DSL service initialization (see page 98-100, 8.13 "Initialization Procedure....ADSL transceiver initialization ") and a COMB signal (see page 111, 8.13.3.1.2 "transmit....C-COMB symbols" and page 145 , 8.15.2 "Channel discovery phase....loop diagnostic mode...figure 8-35" 158 "C-COMB1....C-COMB2" and page 137 "C-COMB1....C-COMB2").

D1 and Hasegawa are silent about:

For claim 2 and 20, where the rest of the symbols have no signal for allowing quiet noise measurement.

For claim 7 and 25, measuring at least one quiet noise parameter during the second set of symbols .

For claim 8 and 26, wherein the measured quiet noise parameter is quiet noise level per bin.

For claim 9 and 27, wherein the measuring at least one quiet noise parameter is performed for symbols in the presence of far-end crosstalk or near-end crosstalk.

Okamura from the same or similar field discloses a communication system with the above features:

For claim 2 and 20, Okamura teaches where the rest of the symbols have no signal for allowing quiet noise measurement (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator).

For claim 7 and 25, Okamura teaches, measuring at least one quiet noise parameter during the second set of symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator, note these symbols can occupy the entire frame (see abstract lines 9-10, carriers are defined as frames carrying symbols), thus they are the same as the first set of symbols that sets the frame) boundaries).

For claim 8 and 26, Okamura teaches wherein the measured quiet noise parameter is quiet noise level per bin (see column 2 lines 27-36, the carriers are divided in to certain frequency widths, each carrier noise level is measured, which means noise level is measured per frequency width).

For claim 9 and 27, Okamura teaches, wherein the measuring at least one quiet noise parameter is performed for symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator) in the presence of far-end crosstalk or near-end crosstalk (see column 2 lines 19-27, measurement is performed during near and far-end interference).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of ITU-T Recommendation G.992.3 and Hasegawa by using the features, as taught by Okamura, in order to minimize the delay of fast data (see col 6 of Okamura);

4. Claims 10-13, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (US 2001/0024454 A1) in view of Okamura (US 6,658,024 B1) and ITU-T Recommendation G.992.3.

As regarding claim 10, Hasegawa discloses A method for maintaining TCM Timing Reference (TTR) synchronization (section 0120-0142 "synchronization" and section 0191 "signal data...inverse synchronization symbol...held as data for TTR

resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") in a customer premises DSL transceiver (see fig. 1 "Subscriber ADSL Machine" and section 0068"transmits and receives data") during in a Time Compression Multiplexing (TCM-ISDN) noise environment (see section 0054 "ISDN....TMC......ADSL line ..and the TCM line ...in parallel in the same cable....TCM crosstalk"), the method comprising: receiving a TTR indication signal (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") from a central office DSL transceiver (see fig 2; 910 and section 0179 "transmits/receives data to/from office transmitter"), the TTR indication signal (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") comprising at least one hyperframe (see fig 13a-b "hyperframe") that includes a plurality of symbols (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization

symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") wherein the TTR indication signal (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") comprises using at least a portion of the TTR indication signal (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") to synchronize a local TTR clock thereto (section 0120-0142 "synchronization" andsection 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR");

For claim 11, Hasegawa teaches a first set of symbols (see Figure 13c, note "S") for indicating the hyperframe boundary (see Figure 13b, note "S" is at the beginning and end

of the frame thus marking a boundary; also see section 0146 lines 9-10); and a second set of symbols (see Figure 13c, note the rest of the symbols).

For claim 12, Hasegawa teaches wherein the first set of symbols includes the first continuous group of symbols of the hyperframe dominated by far-end crosstalk interference (see Figure 12e and Figure 13 b; both diagrams have the same TTR clock (Figures 12a and 13b), where it is shown that FEXT (far end crosstalk) happens at the ends, thus making the "S" fall into the FEXT region; also see section 0070, where the synchronization symbol is classified as a FEXT symbol)

For claim 13, Hasegawa teaches wherein the TTR indication signal (see fig 13a-b "Synchronization symbol...Inverse Synchronization symbol" and section 0120-0142 " synchronization symbol S or the inverse synchronization symbol, that is, information specifying the TTR...information specifying the TTR...receive cycle of one hyperframe 430, that is, the the TTR", section 0191 "signal data...inverse synchronization symbol...held as data for TTR resynchronization" and section 0201 "synchronization symbol S to resynchronize with the TTR") is comprises-transmitted during each of the first set of symbols (see fig 13—b "S").

Hasegawa is silent about:

For claim 10, that the some of the symbols do not contain any signals from the central office and that during those symbols noise is measured; a COMB signal.

For claim 11, where the rest of the symbols have no signal for allowing quiet noise measurement.

For claim 16, measuring at least one quiet noise parameter during the second set of symbols .

For claim 17, wherein the measured quiet noise parameter is quiet noise level per bin.

For claim 18, wherein the measuring at least one quiet noise parameter is performed for symbols in the presence of far-end crosstalk or near-end crosstalk.

Okamura from the same or similar field discloses a communication system with the above features:

For claim 10, Okamura teaches some of which contain no signal from the central office DSL transceiver (see column 3 lines 1-5; while frames (which Okamura defines as carriers) are being transmitted from the central office (ATU-C), the symbols are generated randomly for measurement purposes) ; and measuring a quiet noise parameter during symbols of the hyperframe (see abstract lines 9-10, carriers are defined as frames carrying symbols) in which no signal is received from the central office DSL transceiver (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator).

For claim 11, Okamura teaches where the rest of the symbols have no signal for allowing quiet noise measurement (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator).

For claim 16, Okamura teaches, measuring at least one quiet noise parameter during the second set of symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator, note these symbols can

occupy the entire frame (see abstract lines 9-10, carriers are defined as frames carrying symbols), thus they are the same as the first set of symbols that sets the frame) boundaries).

For claim 17, Okamura teaches wherein the measured quiet noise parameter is quiet noise level per bin (see column 2 lines 27-36, the carriers are divided in to certain frequency widths, each carrier noise level is measured, which means noise level is measured per frequency width).

For claim 18, Okamura teaches, wherein the measuring at least one quiet noise parameter is performed for symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator) in the presence of far-end crosstalk or near-end crosstalk (see column 2 lines 19-27, measurement is performed during near and far-end interference).

ITU-T Recommendation G.992.3 from the same or similar field of endeavor discloses the following:

For claim 10 , ITU-T Recommendation G.992.3 discloses a channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”) of a DSL service initialization (see page 98-100, 8.13 “Initialization Procedure….ADSL transceiver initialization “) and a COMB signal (see page 111, 8.13.3.1.2 “transmit….C-COMB symbols” and page 145 , 8.15.2 “Channel discovery phase….loop diagnostic mode…figure 8-35” 158 “C-COMB1….C-COMB2” and page 137 “C-COMB1….C-COMB2”).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Hasegawa by using the features, as taught by Okamura and ITU-T Recommendation G.992.3, in order to minimize the delay of fast data (see col 6 of Okamura); in order to ATU-R and ATU-C to establish a communication link which will enable a user to communicate and to maximize throughput and reliability (see ITU-T Recommendation G.992.3 page 98 , 8.13)

5. Claim 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3, Hasegawa et al. (US 2001/0024454 A1) and Okamura (US 6,658,024 B1) as applied to claim 4/21 above, further in view of Ginesi et al (US 7,050,825 B2)..

For claim 5 and 23, Hasegawa, Okamura and D1 teach all the claim invention as described in paragraph 3. Additionally, Hasegawa and Okamura teach that the TTR indication signal signal (see section 0070 of Hasegawa; the phase of the TTR clock is sent in a symbol; also see Figure 13b, note "S" for synchronization symbol). However, they do not teach that a REVERB signal are sent. Ginesi et al from the same or similar field of endeavor teaches wherein a signal comprises a REVERB signal (see column 4 lines 57-61, REVERB signals are sent) transmitted during the first set of symbols (see column 5 lines 27-29; the REVERB signal is just one of other signals sent).

Thus it would have been obvious to a person of ordinary skill at the time of the invention was made to combine the sending of the a REVERB signal during an TTR indication

signal, that compromises of multiple symbols. One would have been able to eliminate some of the "S" symbols as taught by Hasegawa (see Figure 13B) and insert the REVERB signal into one of those symbols. This could have been implemented by the Office transmitter (see Figure 4 reference 910) as taught by Hasegawa.

The motivation is that during the transmission of a REVERB signal, noise measurements can be performed (see column 4 lines 52-61 of Ginesi et al). Thus the channel can be optimized for later data transmission.

6. Claim 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3, Hasegawa et al. (US 2001/0024454 A1), Okamura (US 6,658,024 B1), and Ginesi et al (US 7,050,825 B2) as applied to claim 5/23 above, further in view of Okita (2004/0025101 A1).

For claim 6 and 24, D1, Hasegawa ,Okamura, and Ginesi et al teach all the claimed invention as described in paragraph X. Hasegawa ,Okamura, and Ginesi teach the REVERB signal of claim 5, however they do not teach that it is sent in frequency ranges that are not attenuated. Okita from the same or similar field of the endeavor teaches that signal includes a range of sub-carriers (see section 0008, signals are sent in different frequency ranges, thus the signals have range of frequency sub-carriers) selected in a frequency range low enough to avoid being attenuated (see section 0008 lines 9-14) when transmitted to the customer premises DSL transceiver (see section 0002 lines 11-13; the invention can be applied to ADSL technology, thus it can apply to DSL modems also).

Thus it would have been obvious to a person of ordinary skill at the time of the invention was made to include signals at low frequency ranges, in order to avoid attenuation. One could have easily implemented the sending of signals on a low frequency via an RF mixer, which is well known in the art. The Office transmitter, which is a DSL modem, has usually those mixers or it could be very easily implemented.

The motivation for sending signal at a low frequency where they are not attenuated is that the signal is not attenuated, meaning it does not lose strength and the full strength signal is received.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over disclosures of Hasegawa et al (US 2001/0024454 A1) and Okamura (US 6,658,024 B1) as applied to claim 12 above, and further in view of Ginesi et al (US 7,050,825 B2).

For claim 14, Hasegawa and Okamura teach all the claim invention as described in paragraph 4. Additionally, Hasegawa and Okamura teach that the TTR indication signal signal (see section 0070 of Hasegawa; the phase of the TTR clock is sent in a symbol; also see Figure 13b, note "S" for synchronization symbol). However, they do not teach that a REVERB signal are sent. Ginesi et al from the same or similar field of endeavor teaches wherein a signal comprises a REVERB signal (see column 4 lines 57-61, REVERB signals are sent) transmitted during the first set of symbols (see column 5 lines 27-29; the REVERB signal is just one of other signals sent).

Thus it would have been obvious to a person of ordinary skill at the time of the invention was made to combine the sending of the a REVERB signal during an TTR indication

signal, that compromises of multiple symbols. One would have been able to eliminate some of the "S" symbols as taught by Hasegawa (see Figure 13B) and insert the REVERB signal into one of those symbols. This could have been implemented by the Office transmitter (see Figure 4 reference 910) as taught by Hasegawa.

The motivation is that during the transmission of a REVERB signal, noise measurements can be performed (see column 4 lines 52-61 of Ginesi et al). Thus the channel can be optimized for later data transmission.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over disclosures of Hasegawa et al (US 2001/0024454 A1) and Okamura (US 6,658,024 B1) and Ginesi et al (US 7,050,825 B2) as applied to claim 14 above, and further in view of disclosure of Okita (2004/0025101 A1).

For claim 15, Hasegawa ,Okamura, and Ginesi et al teach all the claimed invention as described in paragraph 7. Hasegawa ,Okamura, and Ginesi teach the REVERB signal of claim 15, however they do not teach that it is sent in frequency ranges that are not attenuated. Okita from the same or similar field of the endeavor teaches that signal includes a range of sub-carriers (see section 0008, signals are sent in different frequency ranges, thus the signals have range of frequency sub-carriers) selected in a frequency range low enough to avoid being attenuated (see section 0008 lines 9-14) when transmitted to the customer premises DSL transceiver (see section 0002 lines 11-13, the invention can be applied to ADSL technology, thus it can apply to DSL modems also).

Thus it would have been obvious to a person of ordinary skill at the time of the invention was made to include signals at low frequency ranges, in order to avoid attenuation. One could have easily implemented the sending of signals on a low frequency via an RF mixer, which is well known in the art. The Office transmitter, which is a DSL modem, has usually those mixers or it could be very easily implemented.

The motivation for sending signal at a low frequency where they are not attenuated is that the signal is not attenuated, meaning it does not lose strength and the full strength signal is received.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US-3,835,260 A	09-1974	Prescher et al.
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US-6,724,849 B1	04-2004	Long et al.
US-2004/0105454 A1	06-2004	Okamura, Yusaku
US-7,058,152 B2	06-2006	Long et al.
US-7,142,501 B1	11-2006	Barrass et al.

The above references are cited to show methods of synchronization/interference ISDN and DSL.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenan Cehic whose telephone number is (571) 270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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